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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/662,242

09/15/2003

Gururaj M. Katti

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EXAMINER

WILSER, MICHAEL P

ART UNIT

PAPER NUMBER

2195

MAIL DATE

DELIVERY MODE

01/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/662,242

Applicant(s)

KATTI ET AL.

Examiner

Michael Wilser

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. Claims 1-25 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-11, 13, and 16-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balakrishnan (US 2004/0246980) in view of Koyanagi (US 6,516,403).

4. As per Claim 1, Balakrishnan teaches the invention substantially as claimed including a method comprising:

- a. configuring a processor with multiple threads of execution to execute a critical section in turns (page 2, paragraph 24); and

b. controlling the threads of execution of the processor to avoid occurrence of idle time (page 2, paragraph 22).

Balakrishnan also teaches threads executing on a processor (page 2, paragraph 22) complete execution of a critical section during their turn before allowing other threads to execute the critical section (Figure 10 & page 4, paragraphs 50-53), and that there may exist a plurality of processors (page 2, paragraphs 25-26).

5. However, Balakrishnan does not explicitly disclose that each processor is configured and competes for execution of the critical section during their respective turn. However, Koyanagi disclose a system that controls access to a plurality of processors to compete for access to and execute critical code segments in order (Figure 4 & column 4, lines 62-67).

6. It would have been obvious to one of ordinary skill in the art at the time of invention to have used Koyanagi's system as part of Balakrishnan's invention to control access to critical code execution and that all the processors are configured like the processors are configured in Balakrishnan. One would have been motivated to have waited until a particular processor had finished executing the critical section so that other threads on another processor can access the information in the critical section without corrupting it.

7. However, the combination is not explicit in disclosing the order is sequential. It would have been obvious to one of ordinary skill in the art at the time of invention as a design choice that the order is sequential order so that the threads are allowed into the critical section in the order that they requested entry (e.g. sequential queue order).

8. As per Claim 2, Balakrishnan discloses further discloses that the threads of execution of the processors execute in order via inter-thread signaling (page 3, paragraph 36).

9. As per Claim 3, Balakrishnan further discloses:

a. enabling each thread to execute an instruction to cause inter-thread signal to a next thread to be generated (page 3, paragraph 38 and page 4, paragraph 45); and

b. enabling the thread to execute a second instruction which causes the thread to wait for an inter-thread signal from a previous thread (page 2, paragraph 23 and page 4, paragraph 49).

10. As per Claim 5, Balakrishnan further discloses that the processors comprise a register through which inter-thread signals are given to the next thread (page 2, paragraph 21).

11. As per Claim 6, Balakrishnan further discloses that the processors comprise registers through which inter-thread, inter-processor signaling can occur (page 2, paragraph 21).

12. As per Claim 7, Balakrishnan further discloses that the processors use external registers to enable inter-thread, inter processor signaling to occur (page 2, paragraph 21).

13. As per Claim 8, Balakrishnan further discloses of relinquishing control of the critical section as soon as the critical section has been executed (page 4, paragraph 53).

14. As per Claim 10, Balakrishnan further discloses that the processors are capable of executing at least two critical sections of code (page 3, paragraph 40).

15. As per Claim 11, Balakrishnan further discloses that the processors comprise a functional pipeline in a network processor (page 2, paragraph 20).

16. As per Claim 13, Balakrishnan further discloses that the processors comprise a functional pipeline and one or more critical sections of code are executed in the functional pipeline (page 2, paragraph 20).

17. As Per Claims 16, 20, and 23, they were rejected for the same reason as Claim 1 above.

18. As per Claim 17, it was rejected for the same reason as Claim 2 above.

19. As per Claims 18, 21, and 24, they were rejected for the same reason as Claim 3 above.

20. As Per Claims 9, 19, 22, and 25, they were rejected for the same reason as Claim 8 above.

Allowable Subject Matter

21. Claims 4, 12, and 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter:

(i) As per Claim 4; the prior art does not teach or render obvious the use of a write latency of three instruction cycles when processing a thread in the critical section.

(ii) As Per Claim 12; the prior art does not teach or render obvious the critical section of code comprising a metering microblock or a congestion avoidance microblock.

(iii) As per Claim 14; the prior art does not teach or render obvious the critical section of code comprises an ATM receive processing microblock.

(iv) As per Claim 15; the prior art does not teach or render obvious one or more critical sections comprising an ATM traffic management processing microblock.

Response to Arguments

23. Applicant's arguments with respect to claim 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Wilser whose telephone number is (571) 270-1689. The examiner can normally be reached on Mon-Fri 7:30-5:00 EST (Alt Fridays Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

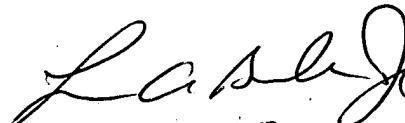
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



MPW
January 16, 2008



LEWIS A. BULLOCK, JR.
PRIMARY EXAMINER